IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Burton Levin	Group Art Unit:	2626
Serial No.:	10/676,273	Examiner:	Hernandez, Josiah J.
Filed:	September 30, 2003	Customer No.:	55648
Title:	TEXT TO SPEECH CONVERSION SYSTEM		

APPELLANT'S BRIEF

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August 20, 2008

Mail Stop APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
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Dear Sir:

BACKGROUND

This brief is in furtherance of the Notice of Appeal, filed in this case on June 23, 2008.

The fees required under 37. C.F.R. § 41.20(b)(2), and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief comprises these subjects under the headings, and in the order, set forth below:

The final page of this brief bears the practitioner's signature.

REAL PARTY IN INTEREST

The real party in interest in this appeal is Sharp Laboratories of America, Inc., assignee of the captioned application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN THE APPLICATION

There are 33 claims currently pending in the application.

B. STATUS OF ALL CLAIMS

Claims canceled: 27

Claims withdrawn: None

Claims pending: 1-26 and 28-34

Claims allowed: None

Claims objected to: None

Claims rejected: 1-26 and 28-34

C. CLAIMS ON APPEAL

Claims 1-26 and 28-34 are on appeal.

A copy of the claims on appeal is set forth in the Claims Appendix to this Brief.

STATUS OF AMENDMENTS

No amendment was filed after final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

A first embodiment of claimed subject matter, as set forth in independent claim 1, is generally directed to a system for the automated, audible recitation of text displayed on a two-dimensional surface, where the text is arranged in a sequence of one or more words such that the surface displays more than one character of text along each dimension. *See, e.g.,* FIGS 1-3. Specifically, the system comprises four elements. The first element is capable of distinguishing

individual words in the sequence from an image of the surface. *See, e.g.,* FIG. 1, element 18 and Specification at p. 3 lines 10-20. The second element is capable of audibly reciting the words distinguished by said first element, and in the displayed sequence. *See, e.g.,* FIG. 1 element 14, FIG. 2, Specification at p. 4 lines 5-19; and Specification at p. 9 lines 11-15. The third element is capable of capturing an image of the surface such that all characters of text within the surface are captured simultaneously. *See* Specification at p. 3 lines 15-16. The fourth element is capable of automatically processing the captured image so as to correct, without user interaction, for image distortion resulting from capturing an image from a surface not parallel to that of an image sensor in the third element, where the processing facilitates automated character recognition of text in a captured image. *See, e.g.,* FIG. 1 element 20 and Specification at p. 3 line 21 – p. 4 line 2; FIG. 3 and Specification at p. 6 line 17 to p. 7 line 2; Specification at p. 7 lines 14-20.

A second embodiment of claimed subject matter, as set forth in independent claim 11, is generally directed to a system for the automated, audible recitation of text displayed on a two-dimensional surface, where the text is arranged in a sequence of one or more words such that the surface displays more than one character of text along each dimension. *See, e.g.,* FIGS 1-3. Specifically, the system comprises four elements. The first element is capable of distinguishing individual words in the sequence from an image of the surface. *See, e.g.,* FIG. 1, element 18 and Specification at p. 3 lines 10-20. The second element is capable of audibly reciting the words distinguished by the first element, and in the displayed sequence. *See, e.g.,* FIG. 1 element 14, FIG. 2, and Specification at p. 4 lines 5-19. The third element comprises: (i) an array of light-sensitive members that each convert incident light to respective electromagnetic signals; (ii) a lens capable of focusing an image on the array; and (iii) a circuit capable of receiving the respective electromagnetic signals and creating an electronic image associated with the image

displayed on the two-dimensional surface. *See, e.g.,* FIG. 1 elements 14, 16, and 18; Specification at 3 lines 10-19. The fourth element comprises an electronic storage with software that processes an image captured by the third element to correct, without user interaction, for image distortion resulting from capturing an image from a surface not parallel to that of an image sensor in the third element, where the processing facilitates automated character recognition of text in a captured said image. *See, e.g.,* FIG. 1 element 20 and Specification at p. 3 line 21 – p. 4 line 2; FIG. 3 and Specification at p. 6 line 17 to p. 7 line 2; Specification at p. 7 lines 14-20.

A third embodiment of claimed subject matter, as set forth in independent claim 21, is generally directed to an electronic device comprising a processor, a lens in proximity to an array of light sensitive members that each convert light into a respective electrical signal, and an audio device. *See, e.g.,* FIG. 1 The lens is capable of focusing an optical image containing text in a sequence of words on the array, which converts the optical image to an electronic image containing the text. *See* Specification at p. 3 lines 10-19. The processor is capable of receiving the electronic image and identifying individual words in the text and routing the words in to the audio device, where the processor includes a page prompt module capable of identifying a page number in the header or footer of the image, and prompting the audio device to recite a warning to a user if the apparatus receives images of pages of text in nonsequential order, prior to the device reciting the words on a page determined to be in nonsequential order. *See* Specification at p. 4 lines 1-3; *Id.* at p. 10 lines 1-7. The audio device is capable of audibly reciting the words in the sequence. *Id.* at p. 9 lines 11-15.

A fourth embodiment of claimed subject matter, as set forth in independent claim 28, is generally directed to a cell phone having a body portion containing a keypad, an audio receiver, and an audio transmitter. *See, e.g.,* FIG. 6; Specification at p. 8 line 15-16; *Id.* at p. 10 lines 7-22.

The body portion includes a digital camera therein, having an outwardly facing lens. *See Id.* at p. 10 lines15-16. The cell phone includes a processor capable of receiving an image containing a text sequence from the digital camera, distinguishing individual words in the sequence, and causing the audio transmitter to recite those individual words, and in the sequence. *See* Specification at p. 10 lines 19-22. The cell phone also includes storage storing a plurality of templates for identifying the layout format of text in an image captured by the digital camera. *See* Specification at p. 11 line 1 – p. 12 line 5.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection presented for review are (1) whether claims 1, 6-11, and 16-20 are unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff et al., U.S. Patent Pub. No. 2003/0134256 (hereinafter Tretiakoff) in view of Chakraborty, U.S. Pat. No. 6,529,641 and in further view of Connor et al., U.S. Pat. No. 5,836,664 (hereinafter Connor); (2) whether claims 2 and 12 are unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Hiroe, et al, U.S. Patent No., and in further view of Chakraborty and Connor; (3) whether claims 3 and 13 are unpatentable under 35 U.S.C. § 103(a) as being unpatentable over the combination of Tretiakoff in view of Goldberg, U.S. Patent No. 6,205,261, and in further view of Chakroborty and Connor; (4) whether claims 4 and 14 are unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Schuller, U.S. Patent No. 6,965,862, and in further view of Chakraborty and Connor; (5) whether claims 5 and 15 are unpatentable under 35 U.S.C. § 103(a) as being obvious in view of the combination of Tretiakoff, Chakraborty, and Connor, and in further view of Wilson, U.S. Pat. Pub. No. 2003/0229497; (6) whether claims 21, 25, and 26 are unpatentable under 35 U.S.C. §

103(a) as being obvious in view of the combination of Tretiakoff in view of Cunningham, U.S. Patent No. 6,208,436; (7) Whether claim 22 is unpatentable under35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff, Schuller, Cunningham, and in further view of Rao et al., U.S. Patent Pub. No. 2004/0203817; (8) whether claim 23 is unpatentable under 35 U.S.C. § 103(a) as being unpatentable over the combination of Tretiakoff, Schuller, and Cunningham: (9) whether claim 24 is unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff, Hiroe, and Cunningham; (10) whether claims 28, 30, and 32-34 are unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Schuller and in further view of Struble et al., U.S. Patent Pub. No. 2002/0163653; (11) whether claim 29 is unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Hiro et al., and in further view of Struble; and (12) whether claim 31 is unpatentable under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Schuller, and in further view of Baum, U.S. Patent No. 6,256,610 and Struble.

ARGUMENT

I.   GROUP I (claims 1-20).

The claims of Group 1 were respectively rejected on the grounds to be reviewed on appeal, enumerated above as grounds (1) – (5). Each of these rejections will be addressed under separate headings, though common arguments apply to each respective rejection.

A.   Rejection of claims 1, 6-11, and 16-20

The Examiner rejected claims 1, 6-11, and 16-20 under 35 U.S.C. § 103(a) as being obvious in view of the combination of Tretiakoff, in view of Chakraborty, and in further view of Connor.

Each of independent claims 1 and 1, as amended, recite the limitation of "a fourth element capable of automatically processing said captured image so as to correct, without user interaction, for image distortion resulting from capturing an image from a surface not parallel to that of an image sensor in said third element, where said processing facilitates automated character recognition of text in a captured said image."

Tretiakoff discloses a camera that digitally captures an image and audibly recites text in the image deciphered by optical recognition software. Tretiakoff discloses that the text recognition will not function unless the text in the captured image is rotationally aligned to appear horizontal in the image and the lens of the capturing device is zoomed out far enough to capture the entire text of a page captured. Thus, Tretiakoff discloses that the apparatus includes

> an automatic image centering and framing (size adjustment) function . . .
> to detect the presence and position of the document or object borders
> and provide to the user through audible or tactile means clues which will
> help achieve image centering and framing without actually seeing this
> image as a sighted person would.

See Tretiakoff at par. 0030. Thus, Tretiakoff requires a cumbersome, user-intensive feedback procedure to instruct the user to zoom in and out, and to rotate the camera to a correct position to enable the text recognition ability of the disclosed camera.

The Examiner, however, argues that Chakraborty and Connor teach the automated correction of "distortion resulting from capturing an image from a surface not parallel to that of an image sensor in said third element." The Examiner is incorrect. Chakraborty merely discloses that an image of skewed text (i.e., an image where the text is parallel to the plane of a capturing sensor, but is rotated in that plane at an angle) may be corrected. Though Connor discloses an adjustment mechanism that corrects keystoning from a projector (in which the projected image is

not parallel to the surface it is projected on), these teachings are of no avail to the apparatus of the primary reference. This is because the method of Connor specifically corrects keystoning by *adjusting the physical optical geometry of the projector itself.* This technique would be of no utility to the off-the-shelf digital camera of Tretiakoff. First, there is no optical component of the camera that can be automatically rotated – instead a person would have to physically tilt the camera so that the entrance pupil of the lens, as well as the sensor, was perpendicular to the imaged surface. Second, even if the image skew would be corrected by simply automatically tilting the image sensor inside the camera, it is highly doubtful that there would be sufficient room for such maneuverability, particularly in a digital SLR where the mirror would likely slap against the sensor, damaging it.

Therefore, each of independent claims 1 and 11, as well as their respective dependent claims 6-10 and 16-20 are patentably distinguished over the cited prior art, and the Examiner's rejection of these claims should be reversed.

B.   Rejection of claims 2 and 12.

The Examiner rejected claims 2 and 12 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Hiroe, et al, U.S. Patent No., and in further view of Chakraborty and Connor. Claim 2 depends from independent claim 1 and claim 12 depends from independent claim 11. The Examiner's rejection of each of these dependent claims is premised on the assumption that the combination of Tretiakoff, Chakrobroty, and Connor discloses all the limitations of these independent claims. Because this is not the case, as demonstrated above, the Examiner's rejection of claims 2 and 12 should also be reversed.

C.   Rejection of claims 3 and 13.

The Examiner rejected claims 3 and 13 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Goldberg, U.S. Patent No. 6,205,261, and in further view of Chakroborty and Connor. Claim 3 depends from independent claim 1 and claim 13 depends from independent claim 11. The Examiner's rejection of each of these dependent claims is premised on the assumption that the combination of Tretiakoff, Chakrobroty, and Connor discloses all the limitations of these independent claims. Because this is not the case, as demonstrated above, the Examiner's rejection of claims 3 and 13 should also be reversed.

D.   Rejection of claims 4 and 14.

The Examiner rejected claims 4 and 14 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Goldberg, U.S. Patent No. 6,205,261, and in further view of Chakroborty and Connor. Claim 4 depends from independent claim 1 and claim 14 depends from independent claim 11. The Examiner's rejection of each of these dependent claims is premised on the assumption that the combination of Tretiakoff, Chakrobroty, and Connor discloses all the limitations of these independent claims, which is not the case, as demonstrated above.

In addition, these dependent claims further distinguish over the combination cited, because they each include the limitation of "where said image distortion being correctable by said fourth element includes image blur resulting from portions of said surface being located outside a depth of field of said third element." The Examiner has failed to allege that the cited prior art discloses this limitation, apparently not recognizing that each of claims 4 and 14 had been amended to distinguish over the disclosure of Schuller. *See* Office Action dated April 11,

2008 at pp. 11-12 (alleging that the prior art discloses limitations that are no longer included in claims 4 and 14, while ignoring the amended content of the claims).

For each of these reasons, the Examiner's rejection of claims 4 and 14 should also be reversed.

E.   Rejection of claims 5 and 15

The Examiner rejected claims 5 and 15 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff, Chakraborty, and Connor, and in further view of Wilson, U.S. Pat. Pub. No. 2003/0229497. Claim 5 depends from independent claim 1 and claim 15 depends from independent claim 11. The Examiner's rejection of each of these dependent claims is premised on the assumption that the combination of Tretiakoff, Chakrobroty, and Connor discloses all the limitations of these independent claims, which is not the case, as demonstrated above.

In addition, these dependent claims further distinguish over the combination cited, because they each include the limitation of "where said programmable electronic dictionary includes a phonetic module that automatically recites an estimated pronunciation of a word to a user for verification." The Examiner alleges that Wilson discloses "a *speech recognition method* that includes a dictionary that recites pronunciations of words to the user based on the phonetic instructions estimated by the dictionary." The Examiner has not explained why one of ordinary skill in are would find it obvious to modify an *optical* recognition system to include the dictionary of Wilson. More specifically, Wilson teaches that speech recognition systems will often print out the text of a wrong word in response to what is spoken by a user, and that this error often results from mispronunciations, and more specifically common mispronunciations of words. Rather than trying to adjust the automated speech recognition software, however, Wilson

approaches the problem from the opposite angle – trying to teach people to speak correctly so that the speech recognition software can do its job.

In this vein, the system of Wilson includes a specific "dictionary" of commonly mispronounced words. When a user recites one or more words that do not appear as the correct text output from the automated speech recognition module, the user indicates that an error occurred and the system consults the dictionary to determine whether the error was due to one of the common mispronunciations. If so, the device of Wilson enters "tutorial" mode to bring the user's diction up to par. Thus, not only is the dictionary of Wilson only useful as an automated check for misspoken words, rather than misspelled words, but is constructed on the basis of multiple voice samples – neither of which has any relevance to an optical recognition system. Thus, there is no reason why one of ordinary skill in the art would look to Wilson's *speech* recognition system to improve Tretiakoff's *optical* recognition system. Therefore, the applicant respectfully requests that the Examiner's rejection be withdrawn.

For each of these reasons, the Examiner's rejection of claims 5 and 15 should also be reversed.

II. Group II (claims 21-26).

The claims of Group II were respectively rejected on the grounds to be reviewed on appeal, enumerated above as grounds (6) – (9). Each of these rejections will be addressed under separate headings, though common arguments apply to each respective rejection.

A. Rejection of claims 21, 25, and 26

The Examiner rejected claims 21, 25, and 26 under 35 U.S.C. § 103(a) as being obvious in view of the combination of Tretiakoff in view of Cunningham, U.S. Patent No. 6,208,436. Independent claim 21 recites the limitation of "where said processor includes a page prompt module that is capable of identifying a page number in the header or footer of an image, and prompting the audio device to recite a warning to a user if the apparatus receives images of pages of text in nonsequential order." The Examiner alleges that this limitation is disclosed by Cunningham. It is not. Cunningham merely discloses the production and use of header and trailer pages that include statistical information about the scan or print job, e.g. page count etc. Thus, Cunningham enables a scanner or printer, once the job is completed, to compare the actual pages scanned or printed to the number indicated in the page count field of a bar code on the header or trailer page. Cunningham does not disclose identifying a header or footer *of a* page, and certainly discloses no means of detecting the scanning of pages in non-sequential order. (Note that if pages were scanned in non-sequential order, such as page 4 being switched with page 3, the method of Cunningham would be unable to detect it, so long as the full page count were correct). Nor would this method have any applicability to the device of Tretiakoff, where there is no way to communicate to a camera the number of pages in a book being scanned, for example.

Dependent claims 25 and 26 each depend from claim 21, and are therefore distinguished over the cited combination for the same reasons as is claim 21. Therefore, the applicant respectfully requests that the Examiner's rejection of claims 21, 25, and 26 be reversed.

B.   Rejection of claim 22.

The Examiner rejected claim 22 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff, Schuller, Cunningham, and in further view of Rao. Claim 22 depends

13

from independent claim 21. The Examiner's rejection of claim 22 is premised on the assumption that the combination of Tretiakoff and Cunningham discloses all the limitations of this independent claim. Because this is not the case, as demonstrated above, the Examiner's rejection of claim 22 should also be reversed.

C. Rejection of claim 23

The Examiner rejected claim 23 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff, Schuller, and Cunningham. Claim 23 depends from independent claim 21. The Examiner's rejection of claim 23 is premised on the assumption that the combination of Tretiakoff and Cunningham discloses all the limitations of this independent claim. Because this is not the case, as demonstrated above, the Examiner's rejection of claim 23 should also be reversed.

D.   Rejection of claim 24

The Examiner rejected claim 24 under 35 U.S.C. § 103(a) as being obvious over the combination of combination of Tretiakoff, Hiroe, and Cunningham. Claim 24 depends from independent claim 21. The Examiner's rejection of claim 24 is premised on the assumption that the combination of Tretiakoff and Cunningham discloses all the limitations of this independent claim. Because this is not the case, as demonstrated above, the Examiner's rejection of claim 24 should also be reversed.

III. Group III (claims 28-34).

The claims of Group III were respectively rejected on the grounds to be reviewed on appeal, enumerated above as grounds (10) – (12). Each of these rejections will be addressed under separate headings, though common arguments apply to each respective rejection.

A.   Rejection of claims 28, 30, and 32-34

The Examiner rejected claims 28, 30, and 32-34 under 35 U.S.C. § 103(a) as being

obvious over respective combinations of Tretiakoff, Schuller, and in further view of Struble et

al., U.S. Pat. Pub. No. 2002/0163653. (hereinafter Struble.) Claim 28, from which claims 30 and

32-34 respectively depend, includes the limitation of "storage storing a plurality of templates for

identifying the layout format of text in an image captured by said digital camera."(emphasis

added). Struble merely discloses that a scanner may include a number of templates, each

including a field to insert a scanned image. Once a user selects a template, the scanned image is

inserted into the appropriate area of the template, which may be printed. For example, a template

may include a four-inch graphical design at the top of a page with a four inch by six-inch field

below it to insert scanned text. If an 8.5 x 11 inch page of text is scanned, after selecting the

template, the scanned image is resized appropriately and inserted into the field to create the

desired document.

Nothing in Struble remotely suggests the limitation of "identifying" a template in which a

scanned document has been formatted. Struble discloses nearly the exact opposite – scanning a

document and inserting it *into a pre-identified* template. Therefore each of claimed 28, 30, and

32-34 patentably distinguish over the cited prior art, and the Examiner's rejection of these claims

should be reversed.

B.   Rejection of claim 29.

The Examiner rejected claim 29 under 35 U.S.C. § 103(a) as being obvious over the

combination of of Tretiakoff in view of Hiro et al., and in further view of Schuller and Struble.

Claim 29 depends from independent claim 28. The Examiner's rejection of claim 29 is premised

on the assumption that the combination of Tretiakoff, Schuller, and Struble discloses all the

limitations of this independent claim. Because this is not the case, as demonstrated above, the Examiner's rejection of claim 29 should also be reversed.

C.   Rejection of claim 31.

The Examiner rejected claim 31 under 35 U.S.C. § 103(a) as being obvious over the combination of Tretiakoff in view of Schuller and Struble, and in further view of Baum. Claim 31 depends from independent claim 28. The Examiner's rejection of claim 31 is premised on the assumption that the combination of Tretiakoff, Schuller, and Struble discloses all the limitations of this independent claim. Because this is not the case, as demonstrated above, the Examiner's rejection of claim 31 should also be reversed.

CONCLUSION

The Examiner's respective rejections of claims 1-26 and 28-34 should be reversed, and the claims should be found patentable.

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Respectfully submitted,

[signature]

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CLAIMS APPENDIX

1.   A system for the automated, audible recitation of text arranged in a sequence of one or more words and displayed on a surface defining an area having a height dimension and a width dimension, said area displaying more than one character of said text along each dimension, said system comprising:

(a)   a first element capable of distinguishing individual words in said sequence from an image of said surface:

(b)   a second element capable of audibly reciting the words distinguished by said first element, in said sequence;

(c)   a third element capable of capturing an image of said surface such that all characters of said text within said area are captured simultaneously; and

(d)   a fourth element capable of automatically processing said captured image so as to correct, without user interaction, for image distortion resulting from capturing an image from a surface not parallel to that of an image sensor in said third element; where said processing facilitates automated character recognition of text in a captured said image.

2.   The system of claim 1 where said first element includes a programmable electronic dictionary.

3.   The system of claim 1 where said first element includes a spell checker.

4.   The system of claim 1 where said image distortion being correctable by said fourth element includes image blur resulting from portions of said surface being located outside a depth of field of said third element.

5.   The system of claim 2 where said programmable electronic dictionary includes a phonetic module that automatically recites an estimated pronunciation of a word to a user for verification.

6.   The system of claim 1 where said third element includes a processor having software that instructs said third element to capture a test image of at least a portion of said surface, analyze said test image, and based on said analysis, automatically, without user interaction, capture a second image that differs from said test image.

7.   The system of claim 6 where said second image corrects for a skewed test image.

8.   The system of claim 6 where said second image is more focused than said test image.

9.   The system of claim 6 where said second image corrects for a distortion in said test image resulting from capturing text from a curved surface.

10.   The system of claim 6 where said second image is a portion of said first image.

11. A system for the automated, audible recitation of text arranged in a sequence of one or more words and displayed on a surface defining an area having a height dimension and a width dimension, said area displaying more than one character of said text along each dimension, said system comprising:

(a) a first element capable of distinguishing individual words in said sequence from an image of said surface:

(b) a second element capable of audibly reciting the words distinguished by said first element, in said sequence;

(c) a third element comprising:

(i) an array of light-sensitive members that each convert light incident on said members to respective electromagnetic signals;

(ii) a lens capable of focusing an image on said array; and

(iii) a circuit capable of receiving said respective electromagnetic signals and creating an electronic image associated with said image; and

(d) a fourth element comprising an electronic storage storing software that processes an image captured by said third element to correct, without user interaction, for image distortion resulting from capturing an image from a surface not parallel to that of an image sensor in said third element, where said processing facilitates automated character recognition of text in a captured said image.

12. The system of claim 11 where said first element includes a programmable electronic dictionary.

13.   The system of claim 11 where said first element includes a spell checker.

14.   The system of claim 11 where said image distortion being correctable by said fourth element includes image blur resulting from portions of said surface being located outside a depth of field of said third element.

15.   The system of claim 11 where said programmable electronic dictionary includes a phonetic module that automatically recites an estimated pronunciation of a word to a user for verification.

16.   The system of claim 11 where said third element includes a processor having software that instructs said third element to capture a test image of at least a portion of said surface, analyze said test image, and based on said analysis, automatically, without user interaction, capture a second image that differs from said test image.

17.   The system of claim 16 where said second image corrects for a skewed test image.

18.   The system of claim 16 where said second image is more focused than said test image.

19.   The system of claim 16 where said second image corrects for a distortion in said test image resulting from capturing text from a curved surface.

20.   The system of claim 16 where said second image is a portion of said first image.

21.   An electronic device comprising a processor, a lens in proximity to an array of light sensitive members that each convert light into a respective electrical signal, and an audio device, whereby

(a)   said lens is capable of focusing an optical image containing text in a sequence of words on said array which converts said optical image to an electronic image containing said text;

(b)   said processor is capable of receiving said electronic image and identifying individual said words in said text and routing said words in said sequence to said audio device, where said processor includes a page prompt module that is capable of identifying a page number in the header or footer of an image, and prompting the audio device to recite a warning to a user if the apparatus receives images of pages of text in nonsequential order, prior to said device reciting the words on a page determined to be in nonsequential order; and

(c)   said audio device is capable of audibly reciting said words in said sequence.

22.   The apparatus of claim 21 where said electronic device is a PDA.

23.   The apparatus of claim 21 where said electronic device is a laptop computer.

24.   The apparatus of claim 21 where said processor includes a programmable dictionary.

25.   The apparatus of claim 21 including a self-contained power source.

26.   The apparatus of claim 21 where said processor is capable of correcting for at least one of a skew, blur, and distortion.

27.   (canceled)

28.   A cell phone comprising:

        (a)   a body portion containing a keypad, an audio receiver, and an audio transmitter;

        (b)   a digital camera in said body portion having an outwardly facing lens;

        (c)   a processor capable of receiving an image containing a text sequence from said digital camera, distinguishing individual words in said sequence, and causing said audio transmitter to recite said individual words in said sequence; and

        (d)   storage storing a plurality of templates for identifying the layout format of text in an image captured by said digital camera.

29.   The cell phone of claim 28 where at least one of said templates is in the layout format of a menu.

30. The cell phone of claim 28 where said processor is capable of correcting for at least one of a skew, blur, and distortion.

31. The cell phone of claim 28 where said processor includes a page prompt module that is capable of identifying a page number in the header or footer of an image, and prompting the audio device to recite a warning to a user if the apparatus receives images of pages of text in nonsequential order.

32. The cell phone of claim 28 where at least one of said templates is in the layout format of a newspaper.

33. The cell phone of claim 28 where one of said templates corresponds to a phone book.

34. The cell phone of claim 33 where said cell phone includes a button and said one of said templates instructs said processor to dial the phone number of a phone book entry being recited when the user presses said button.

EVIDENCE APPENDIX:

None.

RELATED PROCEEDINGS APPENDIX:

None.